Bulletin
of the
Torrey Botanical Club

VOLUME 70

FOUNDED BY WILLIAM HENRY LEGGETT 1870

Editor
Harold W. Rickett

Associate Editors
Irving W. Bailey
Edward W. Berry
Stanley A. Cain
M. A. Chrysler
Harold H. Clum
Adriance C. Foster
Henry Allan Gleason
Arthur H. Graves
John W. Shive
R. P. Wodehouse
Michael Levine

NEW YORK
1943

Published for the Club
by
THE SCIENCE PRESS PRINTING COMPANY
LANCASTER, PENNSYLVANIA

CONTENTS

The Microbiology of the Upper Air ..... *Fred T. Wolf* 1

The Structure and Development of the Shoot Apex of Ephedra altissima Desf. ..... *Ernest M. Gifford* 15

Polyploidy in Sedum pulchellum—I. Cytogeography. *J. T. Baldwin, Jr.* 26

Plant Succession on Abandoned Fields in the Central Wisconsin Sand Plain Area ..... *John W. Thomson, Jr.* 34

The Taxonomy of the Monogeneric Tribe Elvasieae (Ochnaceae). *John D. Dwyer* 42

Kaieteurea, a New Genus of the Ochnaceae ..... *John D. Dwyer* 50

The Status of Distichlis dentata ..... *John R. Reeder* 53

New North American Umbelliferae. *Mildred E. Mathias and Lincoln Constance* 58

Nomenclatural Changes in the Genus Cuscuta, and Notes on Some American Species ..... *T. G. Yuncker* 61

Descriptions of Tropical Rusts—V ..... *George B. Cummins* 68

Index to American Botanical Literature 82

Experiments in the Grafting of Species in the Genus Viola. *John D. Dodd and Alexander Gershoy* 91

Growth of Fruits in Cattleya and Allied Genera in the Orchidaceae. *Robert E. Duncan and John T. Curtis* 104

A Mycorrhizome from the Carboniferous of Illinois. *Henry N. Andrews and L. Wayne Lenz* 120

Some Fossil Fungi from Minnesota ..... *C. O. Rosendahl* 126

Asahina's Microchemical Studies on the Cladoniae. *Alexander W. Evans* 139

Observations on the Culture of Hemitrichia vesparium, with Special Reference to its Black Plasmodial Color ..... *Ruth N. Nauss* 152

Macrosporogenesis, Fertilization, and Early Embryology of Taraxacum kok-saghyz ..... *H. E. Warmke* 164

Two New Species of Hypericum from Colombia. *H. A. Gleason and J. H. Pierce* 174

The Metaphase Stage in Colchicinized Onion Root-Tips. *Michael Levine and Sidney Gelber* 175

Differentiation in Red Root-Tips of Phalaris arundinacea. *Robert Bloch* 182

Further Experiments on the Nutrition of Isolated Tomato Roots. *James Bonner* 184

The Relation of Certain Fungi to Thiamine. *William J. Robbins and Roberta Ma* 190

Index to American Botanical Literature 198

The Tertiary Character of the Cove Hardwood Forests of the Great Smoky Mountains National Park ..... *Stanley A. Cain* 213

Science Lit.
Wahr

A Pollen Study of Two Bogs on Orcas Island, of the San Juan Islands, Washington ..... *Henry P. Hansen* 236
Phytophthora Rot of Belladonna ..... *John T. Middleton* 244
The Morphological Nature of the Photosynthetic Organs of Orchyllium endresii as Indicated by Their Vascular Structure. *W. G. McIntyre and M. A. Chrysler* 252
Polyploidy in Sedum pulchellum—II. Stomatal Size and Frequency. *Harriet E. Smith* 261
The North American Species of Erigeron centering about E. Speciosus (Lindl.) D.C. and E. glabellus Nutt. ..... *Arthur Cronquist* 265
A Taxonomic Revision of the Genus Holodiscus (Rosaceae) .. *Arline Ley* 275
The Section Sedastrum of Sedum ..... *Robert T. Clausen* 289
A Preliminary Investigation of the North American Canes (Arundinaria) ..... *Charles L. Gilly* 297
What Is the Trinomial Typicus?—I ..... *Leon Croizat* 310
Index to American Botanical Literature 325
The Shoot Apices of Athrotaxis and Taiwania ..... *G. L. Cross* 335
The Morphology and Anatomy of Calopogon pulchellus. *Margery C. Carlson* 349
A Further Note on the Production of Thiamine by Actinomyces. *J. Arthur Herrick and Const. J. Alexopoulos* 369
Vitamin Deficiencies of Fifty Yeasts and Molds. *Paul R. Burkholder and Dorothy Moyer* 372
Influence of Temperature on the Infection of Wheat by the Powdery Mildew Erysiphe graminis tritici ..... *Robertson Pratt* 378
Notes on Plants of the Pacific Islands—III ..... *F. R. Fosberg* 386
Another Driftless Area Endemic ..... *Norman C. Fassett* 398
Supplementary Notes on American Menispermaceae—III. *B. A. Krukoff and H. N. Moldenke* 400
What Is the Trinomial Typicus?—II ..... *Leon Croizat* 406
The Status of Certain Anomalous Native Crabapples in Eastern United States ..... *Rogers McVaugh* 418
Chromosomes of Astragalus ..... *Hilda Vilkomerson* 430
Injuries to Trees Caused by Celastrus and Vitis ..... *H. J. Lutz* 436
Index to American Botanical Literature 440
The Germination Capacity of Maize Pollen Having Aberrant Nuclei. *Frances Clark Beard* 449
A Cytological Study of C-Mitosis in the Polysomatic Plant Spinacia oleracea, with Comparative Observations on Allium cepa. *C. A. Berger and E. R. Witkus* 457
Morphological Variation and Cytology of Bromus inermis. *Irving William Knobloch* 467
Plant Succession on Talus Slopes in Northern Idaho as Influenced by Slope Exposure ..... *R. F. Daubenmire and A. W. Slipp* 473

Floating Mats on a Southeastern Coastal Plain Reservoir. *Kenneth W. Hunt* 481
The Inflorescence of Crataegus ..... *H. W. Rickett* 489
The Concept of Inflorescence ..... *Leon Croizat* 496
Flower Forms and Groups of Dicotyledones ..... *Alfred Gundersen* 510
Descriptions of Tropical Rusts—VI ..... *George B. Cummins* 517
A New Species of Sphaeralcea from New Mexico ..... *C. L. Porter* 531
Studies of Pacific Island Plants—III. New and Noteworthy Flowering Plants from Fiji ..... *A. C. Smith* 533
Index to American Botanical Literature 550
Tracy Elliot Hazen. *Cornelia L. Carey, Harold C. Bold and John Hendley Barnhart* 559
The Osmotic Quantities of the Cells in the Hypocotyl of Helianthus annuus Seedlings ..... *William A. Beck and Basilia Andrus* 563
A New Constituent in Wheat Germ Oil ..... *H. H. Bunzell* 599
Crossing-over and Second Division Segregation in Fungi. *Francis J. Ryan* 605
The Number of Chromosomes in Two Species of Amorphophallus. *Clyde Chandler* 612
The Genus Stachyurus ..... *Hui-Lin Li* 615
The Separation of Erigeron from Conyza ..... *Arthur Cronquist* 629
Supplementary Notes on the American Species of Erythrina—II. *B. A. Krukoff* 633
The North American Variations of Distichlis spicata ..... *Alan A. Beetle* 638
Index to American Botanical Literature 651
Index to Volume 70 663

Dates of Issue of Volume 70

Number 1, for January	December 31, 1942
Number 2, For March	March 2, 1943
Number 3, for May	April 30, 1943
Number 4, for July	July 12, 1943
Number 5, for September	September 1, 1943
Number 6, for November	November 16, 1943

ERRATA

p. 44, No. 7 in key. For *E. elvasoides* read *E. elvasioides.*
p. 48, l. 34, 35. For *elvasiodes* read *elvasioides.*
p. 79, l. 14. For *Erythrina berteroana* read *Erythrina Berteroana.*
p. 218, l. 10. For *Acer grandidentata* read *Acer grandidentatum.*
p. 222, table 3, l. 11. For *Vitis aestivale* read *Vitis aestivalis.*
p. 233, l. 20. For *Aruncus silvester* read *Aruncus sylvester.*
p. 329, citation 17. For **Hammer** read **Hamner.**
p. 443, citation 24. For **Goodum** read **Goodwin.**
p. 446, citation 3. For **Withdrow** read **Withrow.**
p. 514, l. 12. For *Franklinia altamaha* read *Franklinia alatamaha.*